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8 **BEFORE THE ARIZONA CORPORATION COMMISSION**

9 ROBERT "BOB" BURNS, Chairman
10 BOYD DUNN
11 SANDRA D. KENNEDY
12 JUSTIN OLSON
13 LEA MÁRQUEZ PETERSON

14 IN THE MATTER OF THE APPLICATION OF
15 ARIZONA PUBLIC SERVICE COMPANY FOR
16 A HEARING TO DETERMINE THE FAIR
17 VALUE OF THE UTILITY PROPERTY OF THE
18 COMPANY FOR RATEMAKING PURPOSES,
19 TO FIX A JUST AND REASONABLE RATE OF
20 RETURN THEREON, TO APPROVE RATE
21 SCHEDULES DESIGNED TO DEVELOP SUCH
22 RETURN.


Docket No. E-01345A-19-0236

**NOTICE OF FILING DIRECT
TESTIMONY OF MIKE
EISENFELD ON BEHALF OF SAN
JUAN CITIZENS ALLIANCE, TÓ
NIZHONÍ ÁNÍ, AND DINÉ CARE**

18 San Juan Citizens Alliance, Tó Nizhoní Ání, and Diné CARE (collectively "Citizen
19 Groups") hereby provide notice that they have this day filed the Direct Testimony of Mike
20 Eisenfeld.
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1 RESPECTFULLY SUBMITTED this 2nd day of October, 2020.

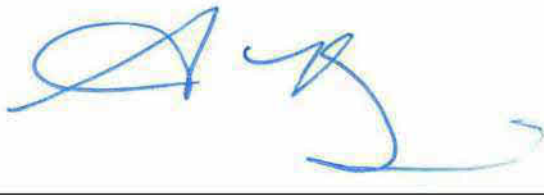
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13 filed and 8 copies delivered this 2nd day
14 of October, 2020 with:

15 Docket Control
16 Arizona Corporation Commission
17 1200 W. Washington St.
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19 COPIES of the foregoing mailed/mailed this
20 2nd day of October, 2020 to the persons
21 identified on the attached service list, consisting
22 of three pages.

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BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

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BOYD DUNN
SANDRA D. KENNEDY
JUSTIN OLSON
LEA MÁRQUEZ PETERSON

IN THE MATTER OF THE APPLICATION OF
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SCHEDULES DESIGNED TO DEVELOP SUCH
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Docket No. E-01345A-19-0236

Direct Testimony of

Mike Eisenfeld

on behalf of

The San Juan Citizens Alliance, Diné CARE,
and Tó Nizhóní Ání ("Citizen Groups")

Oct. 2, 2020

Direct Testimony of Mike Eisenfeld, Citizen Groups

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I. Introduction

Q. Please state your name and business address.

A. My name is Mike Eisenfeld. I am the Energy and Climate Program Manager for the organization San Juan Citizens Alliance. My business address is 665 West Main, Farmington, New Mexico, 87401.

Q. What are your professional qualifications?

A. I have worked for more than 20 years on energy and environmental issues in the Four Corners region. My areas of expertise include energy, coal, oil, gas, air quality and public lands. I also have experience working on issues related to the National Environmental Policy Act, Clean Water Act and Clean Air Act, Federal Land Policy & Management Act, and Endangered Species Act compliance. I have a B.A. from Bates College and an M.A. in Environmental Policy and Management from the University of Denver. Please reference my resumé, which is included as Attachment 1.

Q. For whom are you testifying?

A. I am testifying on behalf of the San Juan Citizens Alliance, Diné CARE and Tó Nizhóní Ání — collectively, the “Citizen Groups.”

Q. Please describe the three organizations that comprise the Citizen Groups.

The San Juan Citizens Alliance (SJCA) is a community-based nonprofit membership organization with over 500 members in the Four Corners region. SJCA works to protect clean air, pure water and healthy lands across the San Juan Basin in northwestern New Mexico and southwestern Colorado. The organization’s energy program is focused on cleaning up decades of impacts related to fossil fuel development and use in the region and transitioning to a just, clean energy future.

Diné CARE is an indigenous community organization based within the Navajo homeland, with staff in both Arizona and New Mexico. It strives to educate and advocate for traditional Diné teachings as a means of protecting and providing a voice for all life living among the Four Sacred Mountains to the Navajo. Diné CARE promotes alternative uses of natural resources that are consistent with the Diné philosophy and Fundamental Law, and it assists local and traditional communities to organize, speak out, and determine their own destinies.

Tó Nizhóní Ání (TNA) is a Navajo grassroots community organization established to preserve and protect the environment, land, water, sky and people and to advocate for the wise and responsible use of the natural resources in the Black Mesa region and throughout the Navajo Nation. Through its work, TNA educates and brings awareness

to local Navajo communities and to Navajo Nation leadership in Window Rock on issues that include energy and resource development. TNA aims to help move the Navajo Nation to a more sustainable economy that is not dependent on coal.

Between our three organizations, we represent a large and diverse cross-section of tribal and non-tribal communities that have been impacted by decades of coal mining and combustion and will be further affected by the retirement of three power plants in the Four Corners region and on the Navajo Nation in northern Arizona in which Arizona Public Service (APS) has ownership shares, Four Corners Power Plant (FCPP) on Navajo land in northwestern New Mexico, Navajo Generating Station (NGS) on Navajo land in northwestern Arizona, and Cholla Power Plant, situated just south of the Navajo Nation in northeastern Arizona.

Q. How are the Citizen Groups connected to the Four Corners region, FCPP, NGS and Cholla?

- A. The Citizen Groups have members who are directly impacted by the operations of FCPP, NGS and Cholla. They monitor and scrutinize government and utility actions related to all three power plants in order to ensure that impacts to local and tribal communities are evaluated and considered as part of decision-making processes regarding the plants and their operations, their closures and the impacts on surrounding communities.

Q. Are any other witnesses testifying on behalf of the Citizen Groups?

- A. Yes. Nicole Horseherder, Executive Director of Tó Nizhóní Ání, also is testifying on behalf of the Citizen Groups. David Schlissel, an expert with the Institute for Energy Economics and Financial Analysis also will testify on our behalf.

Q. What is the purpose of Ms. Horseherder's testimony?

- A. Ms. Horseherder's testimony will:
1. Discuss the environmental and public health impacts of FCPP, NGS and Cholla and the surrounding coal complexes on tribal communities.
 2. Discuss the impact of FCPP, NGS and Cholla on tribal jobs and the economy.
 3. Support the immediate commencement of planning and implementation efforts for a just transition of local communities impacted by the closure of NGS nearly one year ago, and the planned retirements of Cholla within the next five years and FCPP within a decade.
 4. Define what a "Just and Equitable Transition" encompasses.

5. And explain how just and equitable transition efforts align with the Fundamental Law of the Diné.

Q. Do you support Ms. Horseherder's testimony?

A. Yes, I do.

Q. What is the purpose of Mr. Schlissel's testimony? Yes, I do.

A. Mr. Schlissel's testimony will focus on the economics of APS's operations at FCPP since it is currently the plant with the longest interval to retirement. His testimony will provide information about the increasing inability of FCPP to compete against other energy resources and lay out a rationale for the likelihood of APS closing the plant far sooner than the 2031 date currently targeted for its retirement per the following sections:

1. How APS has failed to analyze a retirement date for Four Corners earlier than 2031.
2. The superior competitiveness of low-cost renewable energy resources and battery storage in the West.
3. Current and future depressed pricing for natural gas in western energy markets.
4. The increasing unreliability of FCPP as a baseload generator
5. The increasing costs of operating FCPP.
6. And the likelihood that power produced by FCPP will remain uncompetitive through 2031 if APS continues to operate the plant.

His testimony provides the basis for the Citizen Groups' contention that APS, based on the dramatic changes taking place in energy markets, will retire FCPP far sooner than the 2031 date it has currently set, and that it is thus crucial for APS to begin working with impacted communities to plan and provide financial and other support for a just and equitable transition. Some of Mr. Schlissel's testimony will be confidential.

Q. What is the context and purpose of your testimony?

A. APS is part owner of three coal-burning power plants whose operations and retirements directly impact communities of concern to the Citizen Groups: FCPP in the Four Corners region of northwestern New Mexico and NGS and Cholla in northern Arizona. FCPP and NGS are both located on land leased to APS and its co-owners by the Navajo Nation.

NGS closed in November 2019, less than three years after APS and its four co-owners in the plant announced its retiremen. And earlier this year, APS announced that it had

accelerated the closure dates for both FCPP and Cholla.¹ The announcements are part of broader economic trends dramatically reshaping the energy landscape, particularly in the Southwest. Given the inexorable market pressures that now allow renewable energy to outcompete fossil fuels as a source of electricity across the board, it's entirely possible, as Mr. Schlissel will address in detail in his testimony, that FCPP and Cholla will close even earlier than just announced by APS. This makes it absolutely critical for the communities that will be impacted by such boardroom decisions to be given as much advance notice and support as possible to help them navigate their way to rebuilding their economic bases, which have been centered around coal for decades. After decades of profits, APS and its co-owners in these plants have a corporate obligation and ethical responsibility to provide funding and support to help communities make that transition. If such support is not provided and the issue of Just and Equitable Transition not confronted through proceedings such as this, a number of communities dependent on coal plants and mines will be devastated economically, an outcome that will affect all Arizonans in one way or another.

SJCA's work is most relevant to the Four Corners region, so my testimony will focus specifically on the environmental and economic impacts of FCPP in New Mexico.

In my testimony, I will:

1. Discuss the economic impacts of coal and FCPP on local communities of the Four Corners region.
2. Discuss the environmental and public health impacts of coal and FCPP on people and communities of the Four Corners region.
3. Explain why FCPP will likely retire much sooner than 2031.
4. Explain why APS bears responsibility for a just and equitable transition of FCPP, NGS and Cholla.
5. Describe what a just and equitable transition of FCPP, NGS and Cholla would look like for local and tribal communities.
6. Explain why planning and implementation for a just and equitable transition must begin immediately. And,
7. Expand on the Citizen Groups' recommendations discussed in Nicole Horseherder's testimony, which should be implemented as part of this proceeding to ensure a just and equitable transition.

¹ Arizona Republic. "APS will eliminate carbon emissions by 2050 and close coal plant ahead of schedule, CEO says."
<https://www.azcentral.com/story/money/business/energy/2020/01/22/arizona-public-service-to-end-all-carbon-emissions-by-2050-ceo-jeff-guldner-says/4530389002/>. Jan. 22, 2020.

II. The Economic Impacts of coal and FCPP on Four Corners Communities

Q. Please describe the “Four Corners” region.

- A. The Four Corners region comprises the southwestern corner of Colorado, southeastern corner of Utah, northeastern corner of Arizona and northwestern corner of New Mexico. Much of the region belongs to semi-autonomous Native American nations, including the Navajo Nation. The region also includes New Mexico’s San Juan County and the city of Farmington.

Q. What is the importance of coal to the Four Corners region?

- A. Coal has been a cornerstone of the Four Corners economy for more than a half century, with coal-burning power facilities in which APS has ownership shares and the coal mining complexes that provide fuel for combustion forming core economic foundations for the region.

FCPP came online in 1963. Another coal-burning power plant, San Juan Generating Station, which is owned by multiple utilities, including Tucson Electric Power, and operated by Public Service of New Mexico, came online in 1973. Situated only 11 miles apart, the two plants and their adjoining coal mines make San Juan County and the area around Farmington, New Mexico, one of the largest coal complexes in the United States.

Together, FCPP and SJGS and the two nearby coal mines that supply them, have historically employed an estimated 2,500 workers in the Four Corners region, approximately 1,000 jobs in coal-fired electric power generation and 1,500 jobs in coal mining, representing about 2.4% of the region’s total employment.²

FCPP, at full capacity with all five of its originally constructed units running, employed approximately 500 people, while the Navajo Mine, which supplies its fuel, employed around 320 workers.³ APS shut down three of the units at FCPP in 2013, which resulted in about 150 jobs being cut at the plant.⁴ Two units at SJGS were shuttered in 2017 as part of a negotiated agreement for reducing pollution from the plant under the Clean Air Act.⁵ Nonetheless, even with five coal-burning units retired in the past seven years and the resulting scale-back of workforces at both power plants and both mines, the coal

² From the report “Regional Economic Assessment & Strategy for the Coal-Impacted Four Corners Region,” prepared for the Northwest New Mexico Council of Governments, February 2017.

http://www.nwnmcog.com/uploads/1/2/8/7/12873976/final_highland_economics_report_2017.pdf

³ NNMCG 2017 Report. Page 14.

⁴ New Mexico Energy, Minerals and Natural Resources Department, Annual Report, 2015.

<http://wwwapps.emnrd.state.nm.us/MMD/CoalMinesQuery/default.aspx?Mode=>

⁵ Public Service Co. of New Mexico press release. “PNM Completes Shut Down of Units 2 and 3 at San Juan Generating Station.” <https://www.pnm.com/112017-sjgs-units2and3>. Dec. 20, 2017.

sector is still one of the largest employers in the region.

In early 2020, APS announced for the second time in the past decade that it was accelerating the retirement date for FCPP, which has been and continues to be an important source of revenue for the Navajo Nation and surrounding tribal and nontribal communities. At the time of the announcement, APS estimated that annual payroll from the FCPP and Navajo Mine generated direct annual payroll to around 700 mostly Navajo workers of nearly \$100 million, and that regionally, operations at the plant and mine funneled another \$100 million annually to local, state, tribal and federal entities through taxes, fees and coal royalties. APS also estimated indirect economic impact from the facilities at more than \$200 million per year.⁶

Q. How have recent power plant retirements impacted employment in the region?

- A. As I mentioned above, FCPP retired three of its five generating units seven years ago; additionally, SJGS closed two of its four units in late 2017. These retirement decisions have caused significant job losses in the region, as shown in the table below. The loss of 350 jobs reduced labor income in the region by about \$52.5 million:⁷

**Table 2-3: Reduced Generation and Employment:
NW New Mexico Coal-Fired Power Generation Plants**

Power Plant	Peak Generation Capacity			Reduced Generation Capacity		Change in Jobs	Change in Labor Income (including Benefits), Millions 2016\$
	Generation Capacity (MW)	Jobs	Jobs /MW	Generation Capacity (MW)	Jobs		
San Juan Generating Plant	1,683	~400	0.24	847	~200 ¹	-200	-\$30.0
Four Corners Generating Plant	2,104	~500	0.24	819	~350 ²	-150	-\$22.5
Escalante Generating Station	247	~120	0.49	247	~120	0	
Total	4,034	~1,020	0.25	1,913	~670	-350	-\$52.5

Table from the report, "Regional Economic Assessment & Strategy for the Coal-Impacted Four Corners Region," prepared for the Northwest New Mexico Council of Governments, February 2017.

Q. How will the closure of FCPP in 2031 impact the local economy?

- A. In early 2020, APS accelerated the retirement date for FCPP by seven years moving it ahead to 2031 from 2038 to coincide with the expiration of its coal supply contract with Navajo Mine. As explained in more detail below and in testimony by Citizen Groups

⁶ Associated Press. "Coal industry on Navajo Nation could end with plant closure." Jan. 23, 2020. <https://apnews.com/article/13994822a3d38d2a22c11b34efcf4807>.

⁷ NNMCG 2017 Report. Page 17.

witness David Schlissel, it is extremely likely that deteriorating economics will prompt APS to close the plant even earlier than, moving its closure date closer to that of SJGS in 2022. The estimated total employment and income impacts from the combined closure of SJGS and FCPP within the same decade, including indirect and induced ripple effects in other economic sectors, will result in a loss of 2,260-3,180 jobs and a decrease in \$195.2-\$213.3 million in annual regional income.⁸

Q. Does APS have ownership in FCPP?

- A. Yes, APS is the operator and majority owner of FCPP, currently holding a controlling 63% interest in the units still operating at the plant, Units 4 and 5, or 1,031 MW of the plant's 1,636 MW nameplate capacity. Prior to their retirements in 2013, APS also held sole ownership of Units 1-3, which had a combined nameplate capacity of 633 MW. At that time, APS owned only 15% of Units 3 and 4. To make up for the generating capacity that was lost when Units 1-3 were closed down, APS purchased the 48% controlling interest in the two newer units from Southern California Edison,⁹ which was shedding its coal portfolio to comply with California climate laws. The \$182 million purchase boosted APS ownership in the plant to 63%.

In 2016, an APS subsidiary purchased an additional 7% share of Units 4 and 5 from El Paso Electric¹⁰ (EPE) for an "immaterial" amount,¹¹ which gave the company 70% of the plant's output. Navajo Transitional Energy Co., an LLC enterprise created by the Navajo Nation, secured an option to buy the EPE shares, which it held for three years before completing the purchase of EPE's 7% stake from APS in 2018.¹²

Q. Has a closure date for FCPP been announced?

- A. Yes, APS has set several anticipated retirement dates for FCPP, which have subsequently been accelerated by more than 20 years over the past decade. In SEC filings in 2010, APS signaled that it planned to close FCPP in 2041, in alignment with the expiration of a renegotiated site lease with the Navajo Nation.¹³ APS subsequently inched up the retirement date for FCPP to 2038, a target date it continued to cite

⁸ NNMCG 2017 Report. At Page 9.

⁹ Phoenix Business Journal, Dec. 31, 2013. "APS completes purchase of Four Corners Power Plant." <https://www.bizjournals.com/phoenix/blog/energy-inc/2013/12/aps-completes-purchase-of-four-corners.html>

¹⁰ El Paso Electric Co. press release, Aug. 3, 2013. "Electric Utility in Texas, New Mexico Becomes the First to Go Coal-Free in the Region." <https://ir.epelectric.com/news/news-details/2016/Electric-Utility-in-Texas-New-Mexico-Becomes-the-First-to-Go-Coal-Free-in-the-Region/default.aspx>

¹¹ From APS annual report.

¹² NTEC press release, July 9, 2018. "NTEC purchases partial ownership in Four Corners Power Plant, a first for a Navajo enterprise." https://cdn.website-editor.net/337bd928b7f54e51813e75f713453762/files/uploaded/7_9_18%2520Seven%2520Percent%2520PR.pdf

¹³ APS 2010 Form 8-K filed with the Securities and Exchange Commission. Nov. 8, 2010. <http://edgar.secdatabase.com/1979/95012310102502/filing-main.htm>. Page 2.

throughout 2019.¹⁴ Then, in early 2020, APS announced as part of its intention to provide 100% carbon-free power by 2050¹⁵ that it was again moving up the retirement date for Units 4 and 5 at FCPP from 2038 to 2031. The new closure date coincides with the expiration of the plant's coal supply contract with Navajo Mine.

So, in the span of a handful of years, APS significantly moved up the closure date for FCPP by more than two decades, and as detailed further in my testimony and in David Schlissel's testimony, it is entirely likely that the current closure date for FCPP will come even sooner than 2031. This makes it imperative that APS formally commit to Just and Equitable Transition support for tribal and nontribal communities in the Four Corners region now in order to prevent further disruptions and economic distress.

Q. Have other owners expressed their intention to exit FCPP?

- A. Yes. PNM also has indicated that it intends to exit its 13% ownership in FCPP in 2031, as well.¹⁶ And TEP has set an exit date for its 7% stake from FCPP in 2031.¹⁷ However, as the Citizen Groups contend throughout our testimony, given the consistent moves by APS and its co-owners to move the closure date for the plant ever earlier, and the increasing market pressures consumer preferences for moving quickly away from coal-fired power, there is every reason to believe we haven't seen the last action to move it even earlier.

III. The Environmental and Public Health Impacts of FCPP on Four Corners Communities

Q. Please describe the public health impacts of FCPP on local communities of the Four Corners region.

- A. Residents of the Four Corners region have been dealing with the environmental health impacts from coal combustion and mining for a half century. In that time, pollution from FCPP, along with emissions from SJGS, which is located just 11 miles away, has made surrounding communities in northwestern New Mexico among some of the most

¹⁴ See, for example, this investor presentation by APS parent company Pinnacle West in April 2014.

<http://edgar.secdatabase.com/1979/95012310102502/filing-main.htm>. Pages 7 and 8.

¹⁵ APS press release. "APS sets course for 100 percent clean energy future."

<https://www.aps.com/en/About/Our-Company/Newsroom/Articles/APS-sets-course-for-100-percent-clean-energy-future>. Jan. 22, 2020.

¹⁶ Arizona Republic. "APS will eliminate carbon emissions by 2050 and close coal plant ahead of schedule, CEO says." Jan. 22, 2020.

<https://www.azcentral.com/story/money/business/energy/2020/01/22/arizona-public-service-to-end-all-carbon-emissions-by-2050-ceo-jeff-guldner-says/4530389002/>.

¹⁷ TEP 2020 Integrated Resource Plan.

<https://www.tep.com/wp-content/uploads/TEP-2020-Integrated-Resource-Plan-Lo-Res.pdf>. Page 17.

polluted in the United States.¹⁸ Before three of FCPP's five coal-burning units closed in 2013, San Juan County, New Mexico, was among the worst 10% of counties nationally for toxic releases, particulate air pollution, and sulfur dioxide air pollution.¹⁹ Even after the closure of units at both FCPP and SJGS, San Juan County remains in the bottom 25% of counties nationally for the quantity of toxic releases into the surrounding air, land and water.²⁰

Residents in San Juan County suffer elevated incidence of chronic lower respiratory disease, such as bronchitis, asthma and emphysema, which can be linked to elevated levels of ozone pollution,²¹ of which nitrous oxide (NOx) emissions, such as those from coal-burning power plants, are a major contributor. According to the U.S. Environmental Protection Agency (EPA), historically FCPP was responsible for almost a third of the entire NOx emissions for the entire Four Corners region.²² In comments on permitting for FCPP and the adjacent Navajo Mine, EPA officials described the area as having "Severely compromised ... public health."²³

According to a analysis by the Clean Air Task Force in 2018, the combined pollution from FCPP annually results in 27 deaths, 194 asthma attacks, 16 heart attacks, 18 hospital admissions or emergency room visits, 7 cases of chronic bronchitis and 1,422 lost days of work.²⁴ The health impacts nearly double under the combined pollution of FCPP with SJGS.

Q. Please describe the air pollution caused by the operation of FCPP.

A. FCPP is notorious for its pollution. In a settlement agreement with APS and the other owners of the plant that resulted in the installation of new pollution controls, an official in the U.S. EPA's Office of Enforcement and Compliance Assurance called the plant, "One of the largest sources of harmful pollution in the country."²⁵ It was for many years the

¹⁸ 2012 EPA Toxics Release Inventory data cited in U.S. District Court Case No. 3:16-cv-08077-SPL; Comments filed by the Western Environmental Law Center and other plaintiffs, April 20, 2016.

¹⁹ Ibid.

²⁰ U.S. EPA Toxic Release Inventory, Fact Sheet for San Juan County, N.M., https://iaspub.epa.gov/triexplorer/tri_factsheet.factsheet?pstate=NM&pcounty=San%20Juan&pYear=2016&pParent=NAT

²¹ According to San Juan County's 2010 Community Health Profile, which includes a comprehensive overview of health indicators, including respiratory health. The study was cited in the EPA's draft environmental impact statement for FCPP, Chapter 4, "Affected Environment, Impacts and Mitigation" https://www.wrcc.osmre.gov/initiatives/fourCorners/documents/FC_sec4.pdf

²² U.S. EPA, Final Environmental Impact Statement for Four Corners Power Plant and Navajo Mine Energy Project. Section 4-18. <https://www.wrcc.osmre.gov/initiatives/fourCorners/documents/FinalEIS/Section%204.18%20-%20Cumulative.pdf>

²³ Cited in U.S. District Court Case No. 3:16-cv-08077-SPL; Comments filed by the Western Environmental Law Center and other plaintiffs, April 20, 2016.

²⁴ Data reflects health effects based on 2016 emissions, subsequent to the closure of Units 1-3 at FCPP. http://www.catf.us/fossil/problems/power_plants/

²⁵ U.S. Dept. of Justice press release: "U.S. Requires Arizona and New Mexico Plant Owners to Reduce Emissions at Navajo Nation Four Corners Power Plant."

largest source of ozone-forming NOx pollution in the United States, emitting over 45,000 tons annually.²⁶ Ozone can aggravate pulmonary and other health problems, especially in vulnerable populations (like children, seniors, and people with lung diseases such as asthma).²⁷

Historically, FCPP was one of the largest domestic point sources of carbon dioxide, a significant greenhouse gas; and mercury, a neurotoxin for people and wildlife.²⁸ A 2014 study published by the Los Alamos National Laboratory called the combined pollution emissions from FCPP and SJGS “the largest point source of pollution in the United States” and it identified FCPP as the worse of the two culprits. The study concluded that 75% of the atmosphere (up to an altitude of around 10 kilometers) in the San Juan Basin is polluted, with coal combustion as a significant contributor to the problem.²⁹

As the estimates in the table below show, FCPP Units 4 and 5 still emit millions of tons of carbon dioxide annually; as well as mercury, arsenic, lead, and selenium — all of which can be toxic to people and wildlife.

Table 2 Summary of Air Emissions from BART Compliance at FCPP

Criteria Pollutants, Greenhouse Gases and Target Metals	Historic Pre-2014 Baseline Emissions Units 1, 2, 3, 4, 5 tons/yr	Estimated Post-2018 Baseline Emissions Units 4 & 5 tons/yr	Estimated Cumulative 2016-2041 Emissions Units 4 & 5 tons
Sulfur Dioxide (SO ₂)	11,971	9,800	245,000
Nitrogen Oxides (NO _x)	41,121	5,420	178,850
Carbon Monoxide (CO)	2,096	1,580	39,500
Filterable Particulate	1,976	830	20,750
Carbon Dioxide Equivalents (CO ₂ e)	15,439,236	11,396,710	284,917,750
Arsenic (As)	1.78	0.06	1.5
Lead (Pb)	1.82	0.07	1.75
Mercury (Hg)	0.36	0.07	1.75
Selenium (Se)	5.63	0.28	7.0

Table from the Final Record of Decision by the Federal Office of Surface Mining, Reclamation and Enforcement for permitting of the Four Corners Power Plant and Navajo Mine Energy Project.³⁰

<https://www.justice.gov/opa/pr/us-requires-arizona-and-new-mexico-plant-owners-reduce-emissions-navajo-nation-four-corners>

²⁶ EPA data from <https://www3.epa.gov/region9/air/navajo/index.html#proposed.%203>
<http://www.epa.gov/air/nitrogenoxides/health.html>, and also a statement by EPA Regional Administrator Jared Blumenfeld, <https://tribunenewsnow.com/aps-proposal-would-keep-two-units-of-four-corners-power-plant-open>

²⁷ <https://www.epa.gov/ozone-pollution/health-effects-ozone-pollution>

²⁸ <https://www.epa.gov/mercury/health-effects-exposures-mercury>

²⁹ Los Alamos National Laboratory media release:

<https://www.sciencedaily.com/releases/2014/05/140520100527.htm>

³⁰ <https://www.wrcc.osmre.gov/initiatives/fourCorners/documents/ROD/CompleteROD.pdf>, at p. 23.

Q. Please describe the water pollution issues resulting from the operation of FCPP.

- A. The San Juan River Basin has been associated with energy production and its related environmental pollution problems for more than half a century.

Over the past 50 years, as the plant's operator, APS has disposed of approximately 33.5 million tons of coal combustion waste on site at FCPP.³¹ Coal ash contains numerous toxic constituents, including heavy metals such as antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, and thallium. Coal combustion waste in the form of fly ash, bottom ash, and boiler slag is collected from FCPP's boilers and pollution control equipment and then disposed of in lined and unlined liquid surface impoundments at the coal plant site.³² Contaminants from coal combustion waste have leached through the bottom of existing coal combustion waste impoundments at the site and entered groundwater migrating toward the Chaco River, which flows into the San Juan River just a few miles downstream of FCPP. The coal ash emerges as seepage down gradient from FCPP's unlined coal ash ponds.³³

A hydrologic map included in APS's 2013 Groundwater Monitoring Data shows groundwater from Morgan Lake flowing through current and former disposal sites for toxic coal-ash waste.³⁴ A hydrological analysis conducted by the Federal Office of Surface Mining, Reclamation and Enforcement (in relation to a proposed mine expansion for Navajo Mine, which is the sole source of coal for FCPP) found increased levels of chemical constituents indicating potential coal-ash waste contamination (boron, chloride, fluoride, nitrate, selenium, sulfate, dissolved solids, and conductivity) in the Chaco River downstream from FCPP's coal ash impoundments.³⁵ In an attempt to minimize the migration of coal-ash contaminants to the adjacent Chaco River, APS has constructed various intercept trenches and pump-back wells in the watershed, beginning in 1977 and continuing through the present.³⁶

The potential for water contamination is extremely high given the amount of material dumped and findings in one analysis concluding that the vast majority (upward of 90%) of coal-ash waste disposal sites in the U.S. have leaked toxic chemicals into nearby groundwater.³⁷

Another indicator of FCPP's toxic legacy over the past half century is documented in mercury contamination. The New Mexico Surface Water Quality Bureau has issued fish consumption advisories warning anglers about limiting the amount of fish they eat from

³¹ Petition for Review to the EPA Environmental Appeals Board (EAB) of FCPP's National Pollution Discharge Elimination System permit, No. NN0000019. Filed Nov. 1, 2019. Page 8.

³² Ibid.

³³ Ibid. See also Supplemental Comments submitted by the Western Environmental Law Center regarding the Draft EIS for FCPP and Navajo Mine, Feb. 18, 2015.

³⁴ EAB Appeal. Page. 8.

³⁵ FCPP/Navajo Mine Draft EIS Supplemental Comments.

³⁶ EAB Appeal. Page. 8.

³⁷ Environmental Integrity Project. "Coal's Poisonous Legacy." March 2019.
<https://www.environmentalintegrity.org/wp-content/uploads/2019/03/National-Coal-Ash-Report-Revised-7.11.19.pdf>

reservoirs in San Juan County, including Navajo Lake and Farmington Lake, both downwind of FCPP and SJGS, because of high mercury levels in the fish.³⁸ Mercury is a potent neurotoxin that is harmful even in trace amounts. The most significant source of environmental mercury is coal-fired power plants, which are responsible for about 40% of emissions.³⁹ Research has shown that emissions from power plants can result in local “hotspots”⁴⁰ of mercury accumulation such as those seen in the region’s water bodies.

Q. Please describe the impact on water levels and water availability resulting from the operations of FCPP.

A. Flowing from its headwaters in southwestern Colorado through New Mexico and Utah into Lake Powell and then the Colorado River, the San Juan River Basin is the primary drainage for the Four Corners region. It is one of the most important waterways in the Southwest and one of the most heavily exploited. FCPP has an allocated right to withdraw 51,600 acre-feet per year of water from the San Juan River. On average, FCPP pumps approximately 27,500 acre-feet annually from the river – roughly 24.5 million gallons per day – drawing off approximately 3% of the river’s average annual discharge.⁴¹

According to the U.S. Bureau of Reclamation, the average natural runoff from the San Juan Basin from 1906–2014 totaled more than 2 million acre-feet per year.⁴² The combination of heavy water use and persistent drought conditions have significantly reduced the flow of the river. The average annual discharge dropped to under 1 million acre-feet between 2000 and 2016.⁴³

More importantly, future water availability from the San Juan and rivers throughout the Southwest is projected to become increasingly scarce as snowpack and streamflow amounts decline – decreasing water supplies for cities, agriculture and industrial use⁴⁴ and for use by the Navajo Nation. The U.S. Geological Survey’s Disaster Risk Assessment Study concluded that a long-term drying trend and decreasing snowpack, superimposed on the regional drought cycles, will magnify water-related impacts on the Navajo Nation and leave the Navajo people increasingly vulnerable.⁴⁵ Decreased water

³⁸ <https://www.env.nm.gov/wp-content/uploads/2019/04/2018-fish-advisory-chart.pdf>

³⁹ Northeast States for Coordinated Air Use Management (NESCAUM) Report. Mercury Emissions from Coal-fired Power Plants. October 2003. <https://www.nescaum.org/documents/rpt031104mercury.pdf>

⁴⁰ Mercury Matters; Linking Mercury Science with Public Policy. Hubbard Brook Research Foundation. January 2007.

<https://hubbardbrook.org/mercury-matters-linking-mercury-science-public-policy-northeastern-united-states>

⁴¹ Based on volumes documented by U.S. Geological Survey Data Gage No. 09379500 for the San Juan River, located near Bluff, Utah: Monthly Statistics, 2000–2016.

https://nwis.waterdata.usgs.gov/nwis/monthly/?referred_module=sw&site_no=09379500&por_09379500_163674=448709.00060,163674,1914-10,2016-10&start_dt=1999-10&end_dt=2016-10&format=html_table&date_format=YYYY-MM-DD&rdp_compression=file&submitted_form=parameter_selection_list

⁴² Colorado River Basin Natural Flow and Salt Data, 1906-2014. U.S. Bureau of Reclamation. 2016-11-30.

<https://www.usbr.gov/lc/region/g4000/NaturalFlow/current.html>

⁴³ U.S. Geological Survey Data Gage No. 09379500 for the San Juan River, located near Bluff, Utah: Monthly Statistics, 2000–2016.

⁴⁴ U.S. Global Change Research Program. <https://nca2014.globalchange.gov/highlights/regions/southwest>

⁴⁵ Navajo Nation Department of Water Resources. <http://www.nndwr.navajo-nsn.gov/>

availability is particularly concerning considering that 40% of Navajo Nation members do not have access to running water in their homes.⁴⁶

Q. Does FCPP have adverse impacts on Tribal communities?

A. Yes they do. These impacts are addressed by Citizen Groups witness Nicole Horseherder.

Q. Will the closure of FCPP impact the Tribal communities economically?

A. Yes it will. The closure of FCPP will also exacerbate the economic impacts for the Navajo Nation. These impacts are discussed by Citizen Groups witness Nicole Horseherder.

IV. Factors Suggesting an Early Retirement of FCPP

Q. Are there any reasons or indications that suggest that FCPP could close earlier than 2038?

A. Yes. There are strong indications suggesting that FCPP could close sooner rather than later, as I summarize here and as Citizen Groups witness David Schlissel details more thoroughly in his testimony.

First, the economics of coal plant operations were subpar in 2017 and have only worsened since then. New Mexico's Public Regulation Commission finalized its review of a request by PNM for an electric rate increase three years ago. As part of its case, PNM sought cost recovery of expenditures related to the installation of pollution controls at FCPP. The Hearing Examiners in the docket concluded that it would have been more economical to close the two operating units at FCPP than to make capital expenditures on pollution controls and to continue operating the plant.⁴⁷ The Examiners cited the "increasingly poor performance of Four Corners and its related need for capital improvements." That was three years ago.

a cost analysis recently conducted by Strategen Consulting on behalf of the Sierra Club of all the coal plants serving Arizona utility customers – both those operating in the state and those located in other states – showed that every single unit, 11 across three states, is more expensive to operate on a levelized cost than alternatives such as solar and wind.⁴⁸ In fact, the two FCPP units were the worst performing economically of all 11

⁴⁶ Indian Country Today. June 6, 2017.

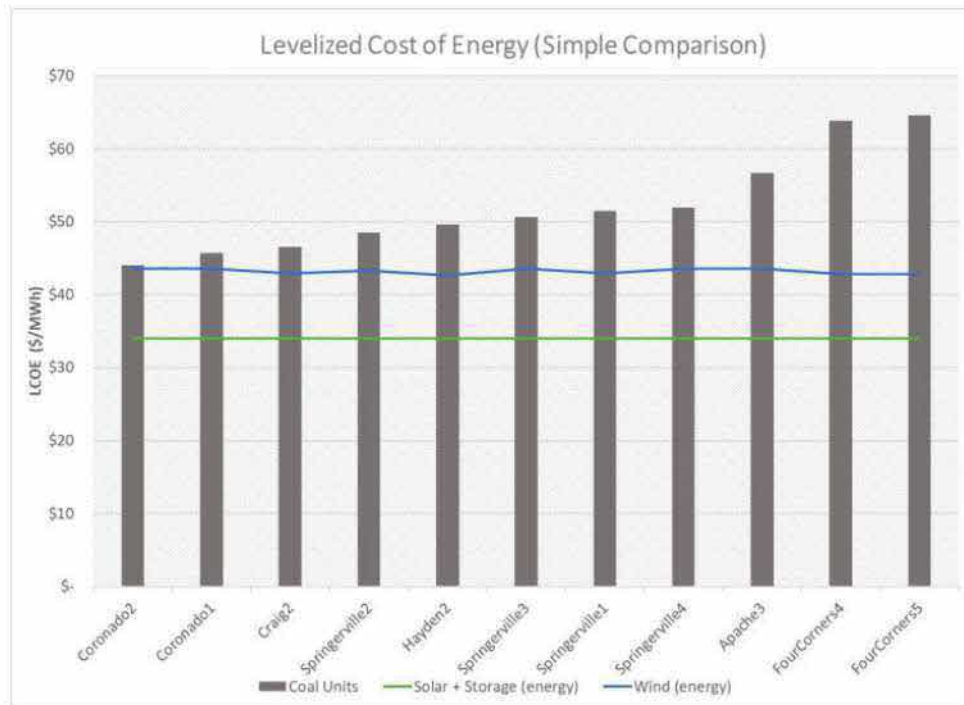
<https://newsmaven.io/indiancountrytoday/archive/water-hole-no-running-water-on-navajo-nation-reservation-JF3R11tCVkeLkYHSz2BxMQ/>

⁴⁷ Certification of Stipulation in PRC Case No. 16-00276-UT, Oct. 31, 2017 (page 45).

⁴⁸ Strategen Consulting, Arizona Coal Plant Valuation Study, September 2019.

<https://content.sierraclub.org/coal/sites/content.sierraclub.org.coal/files/AZ%20Coal%20Valuation%20Study%20-%20Report%20%281%29.pdf>

units analyzed (see chart below). Data show that were the owners to close down FCPP in 2023 and switch to solar plus storage, the avoided cost of operations and maintenance, along with “must take” provisions in FCPP’s coal supply contract with the Navajo Mine, would save customers nearly \$750 million.⁴⁹

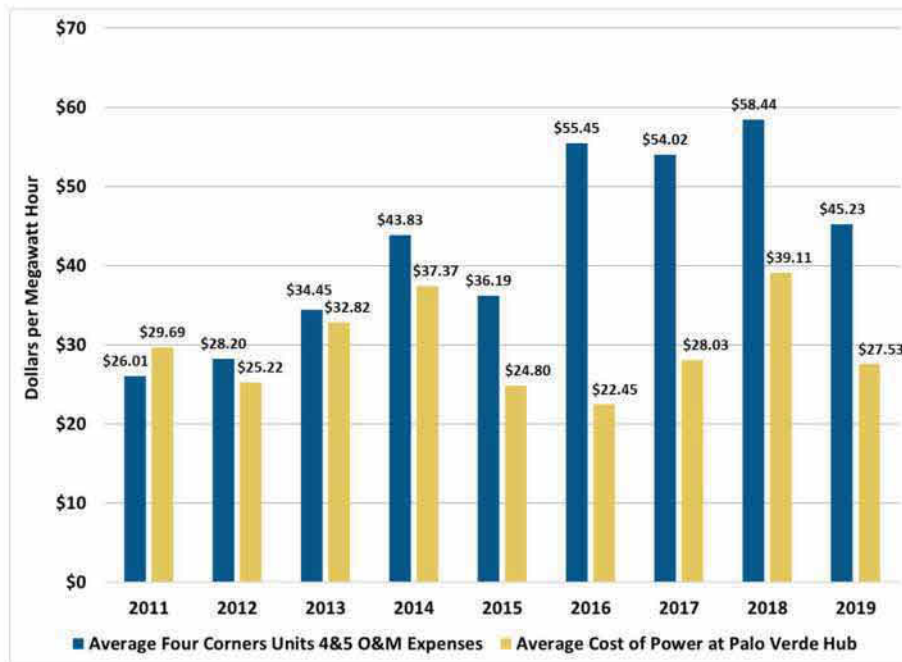


More recent data-crunching by the Institute for Energy Economics and Financial Analysis (IEEFA) quantifies FCPP’s deteriorating financial viability even further. In a July 2020 report, IEEFA enumerated the factors making FCPP no longer economically viable. Those include: the advanced age of the two remaining units, at 50 and 51 years, now among the oldest of large plants still running in the U.S.; FCPP’s persistent decline in electricity production; increased competition from lower cost natural gas and renewable energy; the increasing costs of power production at the plant; and exposure to liabilities from water pollution and coal ash. Combined, these factors leave FCPP unable to compete in today’s energy markets. In fact, as IEEFA demonstrates, for the past eight years, the average cost of power from the plant has been substantially higher – by more than double in 2016, for example, than what the plant’s owners would have paid had they purchased the energy on the open market, as shown in the figure below.⁵⁰

⁴⁹ Ibid. Appendix C, Table 2, Page 32.

⁵⁰ Institute for Energy Economics and Financial Analysis. “Another Expensive Mistake by NTEC: Wasting More of the Navajo Nation’s Resources at Four Corners.” July 2020.
https://ieefa.org/wp-content/uploads/2020/07/Another-Expensive-Mistake-by-NTEC_July-2020.pdf. Page 12.

Figure 6: Recent Four Corners Units 4 and 5 Operating & Maintenance Costs vs. Palo Verde Hub Prices

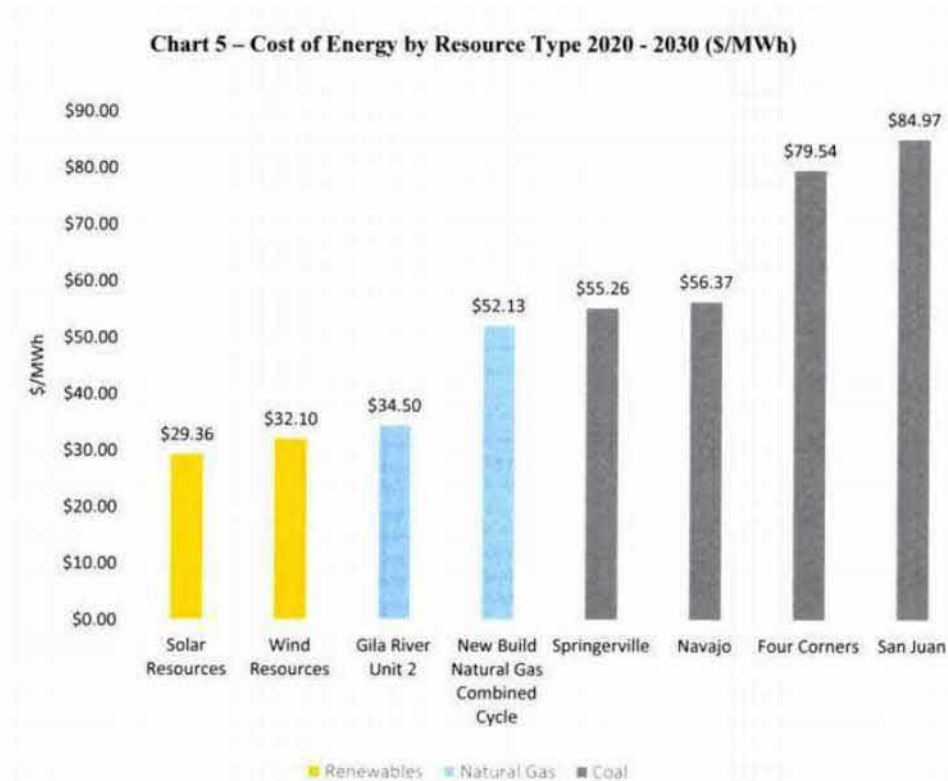


Source: Four Corners O&M from APS FERC Form 1 Filings and Palo Verde Hub Prices from S&P Global Market Intelligence.

Of course, none of this is news to the plant's owners. Looking forward, TEP projects that solar, wind, natural gas and other coal resources will outcompete generation costs from FCPP for the next decade (see chart below).⁵¹ The economic realities are what led PNM to be the first of FCPP's owners to formally commit to an exit from the plant by 2031⁵² and for TEP and APS to follow suit. The plant's inability to compete combined with broader market trends discussed below all raise serious doubts about FCPP's life extending for another decade. There is ample evidence strongly suggesting that retirement will happen far earlier than that.

⁵¹ TEP and UNS Electric Inc., "Response to the Notice of Inquiry - Review, Modernization and Expansion of the Arizona Renewable Energy Standard and Tariff Rules and Associated Rules, Docket No. E-00000Q-16-0289," April 23, 2018, at page 12.

⁵² PNM website. <https://www.pnm.com/reducing-coal>



Q. What are these broader market trends to which you are referring?

- A. Sweeping changes are altering the landscape of power generation in the West and are changing the economics of coal. Most notably, generation alternatives including natural gas, wind and solar have become highly affordable and routinely outcompete coal. Due to these changing economics, FCPP almost certainly will close much sooner than anticipated.

Just two years ago, the owners and operators of several coal-burning power plants said they planned to keep operating their plants for decades. Now, many of those same plants are on the verge of retirement due to the changing economics of the coal sector.

Q. Can you provide some examples?

- A. Yes, on top of the accelerated retirements already announced by APS for FCPP and Cholla, there are dozens of other recent examples from across the country of power providers deciding suddenly to change course and retire coal-burning plants that previously were slated to run for decades more. My testimony, however, focuses specifically on recent examples from western energy markets that are most relevant to TEP's rate case:

- New Mexico's Public Regulation Commission, after a drawn out legal fight, has approved an abandonment filing by PNM to fully retire SJGS by 2022⁵³ – three decades ahead of schedule. Prior to indicating in 2017 that it was considering an early retirement, PNM tentatively planned on running the plant into the 2050s.⁵⁴
- In November 2016, the owners of NGS in Arizona – which includes APS – argued in federal court to continue operating the plant possibly beyond 2044.⁵⁵ Less than two months later, they announced that they would close NGS by the end of 2019 – 25 years early.⁵⁶
- In Nevada, the two units at the Valmy coal-fired power plant were supposed to run until 2031 and 2035, respectively, but the plant's two owners in 2017 asked their respective utilities commissions in Nevada and Idaho for permission to close them well ahead of schedule.⁵⁷ Idaho Power has proposed closing one unit in 2019 and the other in 2025, while NV Energy has suggested a 2025 closure date for both units.
- A decade ago, the owners of Utah's biggest coal plant – Intermountain Power Project – were talking about adding 950 MW of new coal-fired generation capacity, but scrapped their plans based on uncertain economics.⁵⁸ In May 2017, they decided to go even further and shutter the existing two units at the plant in 2025 and build a new gas plant on the site instead.⁵⁹
- In Montana, the retirement date for the four units at Colstrip Generating Station, the second largest coal-burning power plant in the West, continues to creep earlier and

⁵³ Utility Dive. "New Mexico approves PNM exit from San Juan coal plant, but CCS could still save facility." <https://www.utilitydive.com/news/new-mexico-must-apply-clean-energy-law-to-the-san-juan-coal-retirement-but/571464/>. Updated April 2, 2020. See also: Notice of Proceeding and hearing on San Juan Abandonment and Securitization of Energy Transition Costs. <https://www.pnm.com/documents/396023/14794762/PNM-19-00018-UT-Abandon+SJGS-6.125x16-072919.pdf/f0bdcab2-e6ce-d5d2-1809-95a225f1e4ff?t=1564585251391>

⁵⁴ In PNM's application to the New Mexico Public Regulation Commission to retire units 2 and 3 at San Juan Generating Station as part of its compliance with EPA's regional haze requirements, the utility stated that the depreciation schedule allowed for a "remaining life of SJGS Units 1 and 4 through 2053." See testimony of Henry Monroy, the utility's Cost of Service and Corporate Budget Director, in PRC Case No. 13-00390-UT.

⁵⁵ See SRP's brief as an intervenor/respondent in U.S. Court of Appeals for the 9th Circuit, Case No. 14-73055. In its filing, SRP emphasized that as part of EPA's ruling on compliance with EPA's regional haze requirements, there remained a possibility that "NGS can continue operation beyond 2044, so long as it ceases conventional coal-firing at that time."

⁵⁶ SRP New Release, Feb. 13, 2017.

https://www.srpnet.com/newsroom/releases/021317.aspx?TB_iframe=true&width=921.6&height=921.6

⁵⁷ Associated Press. "Idaho Power wants to speed closure of Nevada coal plant."

<http://www.spokesman.com/stories/2017/may/04/idaho-power-wants-to-speed-closure-of-nevada-coal/>. May 4, 2017.

And Utility Dive. "Idaho Power pushes early closure of North Valmy coal plant co-owned with NV Energy."

<https://www.utilitydive.com/news/idaho-power-pushes-early-closure-of-north-valmy-coal-plant-co-owned-with-nv/442173/>. May 8, 2017.

⁵⁸ http://archive.sltrib.com/story.php?ref=/ci_13255691

⁵⁹ Deseret News, May 23, 2017.

<https://www.deseret.com/2017/5/23/20612930/intermountain-power-project-will-shutter-coal-fired-power-plant-near-de-lta>

earlier. Just three years ago, the plant was expected to run until the 2040s.⁶⁰ Through a negotiated settlement over Clean Air Act violations, the owners of the plant agreed in 2016 to close the two oldest units at Colstrip by July 2022.⁶¹ They then shut them down even earlier, ending operations in January 2020 because of deteriorating economics.⁶² In a rate case settlement in Washington state in 2017, Puget Sound Energy, the majority owner of Colstrip, laid the groundwork to fully depreciate its share of the plant by 2027 – two decades ahead of schedule⁶³ – and now as a result of a 2019 climate law, must divest its shares in the plant by 2025. Other owners have since followed suit. In its 2019 IRP, PacifiCorp announced that it planned to retire its 10% stake in Units 3 and 4 by 2027, 19 years ahead of schedule.⁶⁴

- The 116 MW Hardin Power Plant in Montana, built in 2006, is one of the newest coal plants in the country. In 2017, the owners said they had lost too much money to keep running the plant and would likely have to close it in 2018 unless a new owner materialized.⁶⁵ A cryptocurrency firm purchased the plant in early 2019,⁶⁶ but has not made any progress in continuing operations.
- As part of its ambitious Colorado Clean Energy Plan, Xcel Energy announced in June 2018 that it would shut down one unit at its Comanche Generating Station in Pueblo 11 years early in 2022, and the other 10 years ahead of schedule in 2025.⁶⁷
- Also in Colorado, Tri-State Generation and Transmission, the operator of the 125-MW Nucla coal plant, announced in September that it had shut down the four-unit plant more than three years ahead of schedule.⁶⁸
- In January 2020, Tri-State went even further in unveiling a “Responsible Energy Plan” that commits to early retirements for all of its coal-fired capacity in Colorado

⁶⁰ The Economic Impact of the Early Retirement of Colstrip Units 3 and 4. University of Montana Bureau of Business and Economic Research. June 2018. <http://www.bber.umt.edu/pubs/econ/colstrip2018.pdf>

⁶¹ Sierra Club press release, July 12, 2016.

<https://content.sierraclub.org/press-releases/2016/07/colstrip-units-1-and-2-retirement-final-5-million-tons-carbon-pollution-end>

⁶² Billings Gazette. Jan. 2, 2020. “Shutdown of Colstrip Units 1 and 2 is underway.”

https://billingsgazette.com/news/shutdown-of-colstrip-units-1-and-2-is-underway/article_9cf84136-f56e-51b4-8bf9-e4e90d28bdab.html

⁶³ Billings Gazette, Sept. 15, 2017.

https://billingsgazette.com/news/state-and-regional/govt-and-politics/colstrip-edges-toward-complete-closure/article_d4575cbf-70a8-5fab-81c8-0171790b9408.html

⁶⁴ PacifiCorp press release, Oct. 3, 2019.

<https://www.pacificorp.com/about/newsroom/news-releases/2019-draft-irp-increased-renewables-phased-coal-transition.html>

⁶⁵ <http://www.coloradoenergy.com/clients/hardin.html>

⁶⁶ https://billingsgazette.com/news/state-and-regional/montana/owners-of-hardin-coal-fired-power-plant-announce-exit-in/article_d7361054-cbfa-5d3b-81df-f9cff8e87a3c.html

⁶⁷ Colorado Public Radio News, Aug. 28, 2018.

<https://www.cpr.org/2018/08/28/regulators-ok-xcels-early-shutdown-of-pueblo-coal-fired-generators/>

⁶⁸ Tri-State press release. “Nucla Station retires from service.”

<https://www.tristategt.org/nucla-station-retires-service>. Sept. 19, 2019.

and New Mexico. It has already shut down the 250-MW Escalante coal plant in New Mexico, and accelerated the retirement dates for two units at the Craig plant to no later than 2030.⁶⁹

- TEP's 2020 Integrated Resource Plan establishes a closure date for its two coal-fired generation units at the Springerville Generating Station in 2027 and 2032, more than a decade ahead of schedule.⁷⁰
- As of this summer, Salt River Project is now exiting its ownership stake in units at power plants in Colorado in 2028, years earlier than planned.⁷¹
- PacifiCorp, one of the largest utilities in the West, serving 1.9 million customers across six states, has made some of the most sweeping moves, committing in its resource plan to dramatic expansion of its renewable energy portfolio and accelerated retirements for its 20 of the 24 units in its fleet of power plants extending across four states. The company's 2019 IRP⁷² calls for taking nearly 2,800 MW of coal offline by 2030, far ahead of schedule, including early exits from: Unit 1 at the Jim Bridger plant in Wyoming 14 years ahead of schedule, in 2023 instead of 2037, and Unit 2 at Bridger nine years early, in 2028 instead of 2037; Units 1 and 2 at the Naughton plant in Wyoming four years early, in 2025 instead of 2029; Unit 2 at the Craig plant in Colorado eight years ahead of schedule, in 2026 instead of 2034; and as mentioned above, Units 3 and 4 at Colstrip 19 years early, in 2027 instead of 2046. In their place, PacifiCorp plans to add Utah: 3,000 MW solar with 635 MW of battery storage capacity, between 2020 and 2037. In their place, PacifiCorp is planning on nearly 7,000 MW of new renewable generation and storage capacity by 2025.⁷³

One would have to be intentionally blind to such market signals not to conclude that the end of coal is coming far sooner than most think. No utility and no coal plant is immune to the market forces driving these retirement decisions. These forces are pushing utilities to swiftly alter plans that previously had their coal assets operating for decades. If we're to learn anything from the examples above, it's that planning and preparation for retirements and a Just and Equitable Transition needs to happen now because

⁶⁹ Tri-State press release. "Tri-State announces retirement of all coal generation in Colorado and New Mexico." <https://www.tristategt.org/tri-state-announces-retirement-all-coal-generation-colorado-and-new-mexico>. Jan. 9, 2020.

⁷⁰ Utility Dive. "Consumer demand prompts aggressive shift toward renewables, storage at Tucson Electric Power." <https://www.utilitydive.com/news/consumer-demand-prompts-aggressive-shift-toward-renewable-energy-at-tucson/580772/>. June 30, 2020.

⁷¹ Colorado Sun. "Only three coal-fired power plants in Colorado are set to operate past 2030 after Craig Station shutdown date is unveiled." <https://coloradosun.com/2020/07/14/craig-station-closes-2030-coal-colorado/>. July 14, 2020.

⁷² PacifiCorp 2019 Integrated Resource Plan. <https://www.pacificorp.com/energy/integrated-resource-plan.html>

⁷³ Utility Dive. "PacifiCorp to add 7 GW renewables + storage, close 20 of 24 coal plants." <https://www.utilitydive.com/news/pacifiCorp-to-add-7-gw-renewables-storage-close-20-of-24-coal-plants/564299/>. Oct. 1, 2019.

decisions with the potential to dramatically affect coal-dependent communities may be coming far sooner than previously anticipated.

V. Ensuring a Just and Equitable Transition for Communities Economically Dependent on Coal

Q. What is meant by a “just and equitable transition”?

- A. A “just and equitable transition” means that local communities that are economically dependent on coal and hardest hit by global changes in energy technology are not left behind as coal-fired power plants and coal mines close and the world transitions to cleaner energy. It means that power generators and users make concerted efforts to assist these communities in their transition to new modes of economic development. Citizen Groups witness Nicole Horseherder provides more detail on just and equitable transition in her testimony.

Q. Why should APS bear some responsibility for a just transition of FCPP, NGS and Cholla?

- A. APS’s coal-fired power plants have helped ensure a reliable supply of electricity for its customers for over 50 years. As Nicole Horseherder and I have testified, the tribal and nontribal communities of the Four Corners region and in the areas surrounding NGS and Cholla are economically dependent on these plants, and their future remains uncertain after these plants close. APS and its customers have benefited from the contributions of these communities for decades. As such, they have an obligation to ensure that proactive steps are taken now to help these communities transition to new economic bases as the utility makes financially driven decisions to close power plants down.

In comments submitted in TEP rate case proceedings before this Commission (Docket No. o. E-01933A-19-0028), Navajo President Jonathan Nez correctly pointed out that power generated by coal plants on or near the Navajo Nation has “played an essential role in providing reliable, affordable electricity to population centers across the state,” adding that “the historical contribution of Navajo-based coal generation to meeting downstate electricity demand is likely even more pronounced than data from the last decade alone would indicate given the centrality of coal to Arizona’s historical generating portfolio.”

Because of the disproportionate benefits that APS and its customers and shareholders have derived from the operation of FCPP, NGS and Cholla, it is rational to conclude that the company bears a responsibility for ensuring that the people and businesses built up around these communities are supported as APS makes business decisions that up-end them.

Q. When should planning and implementation of a just and equitable transition for these plants begin?

- A. Planning for a just and equitable transition actually should have begun years ago, considering that APS retired its first three units at FCPP seven years ago and shut down the biggest coal-burning plant in the West nearly a year ago. In the time since, neither it nor its co-owners in these plants have made any commitment to a just and equitable transition nor provided any funding for such efforts. Now that early retirement dates are official for Cholla and FCPP, the time to start planning for the eventual closure of these plants and a transition to new economic drivers is **now** — even in the unlikely event that power plant retirement actually is a decade away..

It is necessary and appropriate to bring together affected constituencies, plant owners, regulators and other stakeholders to begin discussions well in advance of power plant closure to resolve issues that should be addressed to minimize the negative effects of shut downs. Sweeping economic changes such as those inherent in the retirement of centralized power plants do not – and cannot – happen overnight. They must be systematically implemented over time scales that can encompass a decade or more. While a few states, such as Oregon, have dealt with the complex issues of plant closure and the effects on local communities,⁷⁴ Arizona's experience is much less supportive, with no planning or just and equitable transition funding provided either for NGS or Cholla, where one unit was closed down five years ago.

Q. Is there anything else that you would like to add on why planning and implementation of a just and equitable transition must begin now?

- A. Yes. We know from my testimony and the testimony of Citizen Groups witness Nicole Horseherder that plants like FCPP, NGS and Cholla are significant contributors to local economies through jobs and tax revenues, and that power plant closure can have a material and devastating effect on local economies and communities. These effects can be ameliorated if there is proactive discussion, consideration and implementation of mitigation strategies and planning for development of alternate economic opportunities prior to and well in advance of closure.

Now more than ever, as utilities across the West change direction and consider retiring coal-fired power plants that have operated for decades, the communities in which they are situated need sound economic and workforce development models that can create a pathway to a sustainable future. These models are needed now.

Q. Is the principle of gradualism applicable to a just transition?

- A. Yes. The Commission historically has been a proponent of gradualism, which supports incremental adjustments and progress to avoid and mitigate against dramatic change.

⁷⁴ Portland General Electric announced the 2020 retirement of the Boardman power plant in Oregon in 2010, giving stakeholders 10 years to plan for the facility's closure.
https://www.oregonlive.com/business/index.ssf/2010/04/pge_files_to_close_boardman_co.html

Often the principle of gradualism is applied to utility rate increases so that ratepayers can more easily adapt to changing prices.

It is also logical to apply the principle of gradualism to power plant closure. Protecting communities from the sudden impacts of coal plant retirements and the sudden disappearance of an important part of their tax and employment base is similar to protecting ratepayers from the shock of large rate increases. Beginning to plan for the significant economic impact of a coal plant closure early can help put in place a plan and strategies to address the economics of plant closure and to plan for the development of alternative economic drivers. Additionally, planning early would allow a just and equitable transition fund (discussed later in my testimony) to be established and built up over time, avoiding rate shock – if customer rate-base is indeed used as part of transition funding – by spreading the costs over a longer period of time (if utility ratepayers contribute to the fund).

Q. Does APS acknowledge an obligation to ensure that proactive steps are taken to help communities impacted by the closure of FCPP, NGS and Cholla?

A. APS acknowledges the impacts that plant closures may have on local communities and has stated that it will participate in any transition efforts that all or other plant owners support.⁷⁵

VI. Recommendations to Ensure a Just Transition as Part of This Proceeding

Q. Do you support the six recommendations for a just and equitable transition described by Citizen Groups witness Nicole Horseherder?

A. Yes, I do.

Q. What are those recommendations?

A. The recommendations are:

1. APS should establish two separate Transition Funds to provide financial resources to the communities impacted by the closure of FCPP, NGS and Cholla. Specifically, APS should commit at least \$210 million to support just and equitable transition funds for the Four Corners region and Arizona;
2. APS should provide financial support to help establish and implement two separate transition collaboratives that it also participates in: (1) A Four Corners Transition Collaborative comprising stakeholders from northwestern New Mexico, and (2) An

⁷⁵ See Tucson Electric Power Company's Response to the Citizen Groups 1st Set of Data Requests including Citizen 1.01, 1.02, and 1.03.

Arizona Transition Collaborative comprising stakeholders from the Navajo Nation, the Hopi Tribe, and northern Arizona communities near NGS and Cholla.

3. APS should support tribal communities through commitments to providing transmission capabilities and renewable energy development opportunities on Tribal Lands, including through working with the Navajo to facilitate Tribally-owned and operated projects.
4. APS must comply with the provisions recently approved by the Commission to deploy energy efficiency programs to benefit tribal communities and should strive to expand beyond the minimum required funding.
5. APS should provide in-kind and regular assistance to the Navajo Nation to aid in economic development efforts through the development of electric and water infrastructure that serves Tribal communities.

Q. Is there anything about Citizen Groups Recommendation #1 that you would like to add?

- A. Yes. Based on the magnified economic impacts that will be experienced on the Navajo Nation by the closure of all three plants, a percentage of both transition funds should be earmarked specifically and explicitly for the benefit of tribal communities.

Q. Is there anything about Citizen Groups Recommendation #2 that you would like to add?

- A. Yes. Navajo interests including, but not limited to, governance at the chapter, agency and tribal levels, labor representation, and community advocacy organizations must be given an opportunity to participate in both transition collaboratives. We further recommend that both a tribal and a nontribal neutral convener be selected to lead the collaboratives.

VII. Conclusion

Q. Does this conclude your testimony?

- A. Yes.

Attachment 1

MICHAEL A. EISENFELD

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EDUCATION

UNIVERSITY OF DENVER, DENVER, COLORADO 1994

M.A. ENVIRONMENTAL POLICY AND MANAGEMENT

BATES COLLEGE, LEWISTON, MAINE 1985

B.A. HISTORY

EXPERIENCE SUMMARY

Mike Eisenfeld has worked for the San Juan Citizens Alliance for 13 years as an Energy Coordinator/Energy and Climate Program Manager on the Colorado Plateau. He specializes in National Environmental Policy Act (NEPA), Endangered Species Act (ESA), Clean Water Act (CWA) and Federal Land Policy & Management Act (FLPMA) compliance. Mr. Eisenfeld's program work includes coal, oil and gas, air quality, water, renewable energy, and public lands. Prior to working for San Juan Citizens Alliance, Mr. Eisenfeld had 11 years of experience as a Project Manager/Environmental Consultant in the southwestern United States managing and supervising multi-disciplinary teams working on project related analyses and compliance.

PROFESSIONAL EXPERIENCE

**2007-Present ENERGY COORDINATOR/ENERGY AND CLIMATE PROGRAM MANAGER,
SAN JUAN CITIZENS ALLIANCE, FARMINGTON, NEW MEXICO**

Mr. Eisenfeld works on coal-fired power plants, coalmines, oil and gas, air quality, water, renewable energy and public lands. Responsibilities include regulatory/technical oversight, coordination with legal challenges, community organizing, project comment development, and regional strategizing to transition the Four Corners region to sustainable energy projects. Specific projects worked on include Coal (the proposed Desert Rock Energy project, the Four Corners Power Plant/Navajo Mine, the San Juan Generating Station/San Juan Mine, El Segundo Mine, Coal Combustion Waste, transmission lines), Oil and Gas (Resource Management Planning, leases, exploration and development, processing, Mancos Shale and air quality), Air Quality (natural gas contributions to air pollution, methane, coal emissions, ozone, Regional Haze), Water (energy project and water use nexus), Renewable Energy (siting of solar and wind projects), and Public Lands (Protection of multiple use principles, protection of Chaco Culture National Historical Park). Mr. Eisenfeld is a proficient technical writer for regulatory comments to challenge permits and projects. Mr. Eisenfeld has successfully navigated working in an extractive energy intensive region of the U.S. complicated by historic, political, economic and cultural factors.

2004-2007

SENIOR PROJECT MANAGER, TETRA TECH, INC. - FARMINGTON, NEW MEXICO

Mr. Eisenfeld served as a Project Manager/Environmental Consultant/Technical Writer for the Farmington office of a national environmental consulting firm. He was responsible for office management, personnel oversight, business development, integration with other Tetra Tech offices and project management. Mr. Eisenfeld's professional experience includes the preparation of Environmental Assessments (EAs), Environmental Impact Statements (EISs), Resource Management Plans (RMPs), Biological Assessments (BAs), CWA permitting for Sections 401, 402 and 404, Clean Air Act (CAA) compliance and the preparation of Phase I and Phase II Environmental Site Assessments.

1996-2003

PROJECT/OFFICE MANAGER, ECOSPHERE ENVIRONMENTAL SERVICES - FARMINGTON, NEW MEXICO

Mr. Eisenfeld managed diverse projects on federal, state, tribal and private land in the Four Corners region. Mr. Eisenfeld has regulatory project experience with the Bureau of Land Management (BLM), United States Forest Service (USFS), Bureau of Reclamation (USBR), United States Army Corps of Engineers (USCOE), Environmental Protection Agency (EPA) and Bureau of Indian Affairs (BIA). Mr. Eisenfeld was responsible for regulatory compliance with statutes and accurate consultations with state, federal and tribal agencies. Mr. Eisenfeld's skills include coordination and scheduling of biological field surveys, site analysis, preparation and review of technical environmental documents, client/agency consultation and coordination, marketing and business development, proposal writing and submittal, budget tracking, and personnel management and supervision. Mr. Eisenfeld facilitated interdisciplinary analysis of multiple use impacts, requiring critical analysis and problem-solving capabilities. Principal technical writer for Third Party preparation of NEPA documents for projects on federal and tribal lands. Retained by clients to analyze federal agency documents (RMPs and Forest Plans) for planning purposes pertaining to FLPMA.

Mr. Eisenfeld's permitted field experience includes surveys and habitat evaluations for Southwestern willow flycatcher, Mexican spotted owl, raptors, and numerous cactus species, as well as environmental baseline surveys.

1995

PROJECT LEADER, STUDENT CONSERVATION ASSOCIATION, INC. - SPRINGDALE, UTAH

Project Leader for natural resource work project in Zion National Park in Kolob Canyon for six teenage volunteers building trails and fences. Taught environmental education curriculum and minimum impact outdoor skills; directed professional interaction between National Park personnel and volunteers to accomplish work goals. Exhibited leadership in teaching and supervision.

1991-1992

RESEARCH ASSISTANT (INTERN), LAND & WATER FUND OF THE ROCKIES - BOULDER, COLORADO

Responsible for assessments of utility proposals for energy generation. Assisted utilities in energy management programs through quantified economic and environmental studies, and technical scientific analysis. Evaluated energy strategies and policies in the Rocky Mountain region. Published research in Land & Water Fund's energy study How the West Can Win.

**1991 WILDERNESS FIELD INSTRUCTOR, FREER WILDERNESS THERAPY
EXPEDITIONS - PORTLAND, OREGON**

Worked in conjunction with therapists on intensive 21-day backcountry trips providing treatment to at-risk adolescents. Responsible for all course logistics; provided outdoor skill training for participants; supported individual and group therapy sessions which facilitated the development of life management skills.

**1986-1990 ENVIRONMENTAL EDUCATOR, WILDERNESS VENTURES - JACKSON,
WYOMING**

Program Director/Environmental Educator for environmental education programs teaching outdoor skills to high school students in Alaska, the Northern Rockies, and the Pacific Northwest. Responsible for program curriculum; budget management; annually instructed and supervised 6 staff members and 30 students in natural resources, natural science, and related issues.

1984-1993 OWNER, ART BUSINESS - BOULDER, COLORADO

Designed, created and marketed line of painted clothing.

PROFESSIONAL AFFILIATIONS

Former member of the New Mexico BLM Resource Advisory Council (RAC). Appointed to three-year term (2002-2004) by Secretary of the Interior, United States Department of the Interior.